

Eating disorders among Majmaah University Students, Saudi Arabia

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ABSTRACT

Background: Eating disorders (ED) are one of the most prevalent mental issues that today's teenagers confront, characterized by a distorted attitude toward weight and form, as well as a distorted sense of body shape. The purpose of this study is to identify the prevalence of eating disorders in students at Majmaah University in the KSA and the variables that affect them.

Methodology: Majmaah University students were selected for this cross-sectional study. Subjects will be asked to complete a previously tested questionnaire about socioeconomic status, eating habits, Eating Attitudes Test 26 (EAT 26), height, weight, and BMI. **Results:** Of the 516 students, 82.2% of the survey participants are between the ages of 20 and 30. 62.8% were male and 37.2% were female. 28.6% of the participating students were at high risk of ED and 71.4% were at low risk of ED. There was a significant correlation between male gender ($P = 0.001$), BMI ($P = 0.02$), and risk of ED due to current smoking status ($P = 0.001$). **Conclusion:** In summary, the ED risk reported among college students in this study is below the reported figures, but relatively high compared to the global figures. This study highlights an underestimated health problem among Saudi Arabian college students.

Keywords: eating disorders, mental issues, teenagers, Majmaah University Students, Saudi Arabia

1. INTRODUCTION

In today's health-conscious culture, the terms "health" and "fitness" have become iconic, yet dieting may be hazardous if it develops into an eating disorder (ED). In recent years, psychiatry has acquired a better understanding of the nature of EDs, and has appropriately extended the definition to cover a wide range of issues such as anorexia nervosa (AN), bulimia nervosa (BN), binge eating disorder (BED), and avoidant/restrictive food intake disorder, and they have been included in the DSM-5 (2013), the Diagnostic and Statistical Manual of Mental Disorders (Sawyer et al., 2016). Eating disorders

are very long-term, sometimes lasting years, and they take a huge toll on individuals who suffer from them. Eating disorders impair interpersonal, vocational, and academic performance, as well as raising the likelihood of comorbid issues including anxiety, depression, and suicide (Sawyer et al., 2016). Eating disorders are most common in adolescence, with a frequency of 13.5% among women and 3.6% among males, as reported in one major study conducted on college students (Eisenberg et al., 2011). Unfortunately, little percentage of teenagers and young people get therapy for these issues.

AN is defined as a limitation of caloric intake that results in a substantially low body weight. A patient may also have a concern of gaining weight and/or a problem with how they view their bodies based on the age, sex, and physical health (American Psychiatric Association, 2013). AN affects around 1% of American women once in their lives (Hudson et al., 2007). In teenage females, it is the third most prevalent chronic illness. When treating afflicted people, doctors typically differentiate between two subtypes: restricting and purging. Purging may take the form of vomiting, although it is commonly presented by excessive and/or obsessive activity or diuretic abuse. Because of its physical symptoms, this psychiatric illness poses a significant risk of serious and long-term bodily harm. Electrolyte imbalances and gastrointestinal damage, which often includes the use of laxatives, are prevalent. Patients with AN; are also more prone to develop osteoporosis, cardiovascular disease, infertility, and a variety of other health problems (Meczekalski et al., 2013).

BN is defined by repeated bouts of binge eating, in which a person eats an excessive quantity of food in a short period of time, followed by periods of purging, according to the DSM-5. This purging is an effort to lose the calories consumed during the binge, which might otherwise lead to weight gain. Vomiting, abuse of laxatives (or other diuretics), fasting, and extreme exercise are all examples of purging behaviors. This pattern must recur, minimum one time per week for three months on average for a clinical diagnosis to be made (American Psychiatric Association, 2013). BN affects around 1.5 percent of American women at least once (Hudson et al., 2007). Because persistent vomiting may cause severe damage to the oral cavity and esophagus owing to the acidic nature of vomit, healing and therapy of the body are essential components of the recovery process, just as they are in AN.

BED is a kind of ED characterized by repeated and persistent bouts of binge eating, which include eating more quickly than usual, eating huge quantities of food without hunger, and feeling ashamed or sad after overeating. Significant concern about binge eating and the lack of purging behaviors, as well as the need; that the pattern recurs once per week for three months, are all criteria for diagnosis. The most prevalent eating disorder in the United States is BED as 3.5% of adult women, 2% of adult males, and up to 1.6% of adolescents are affected (Swanson et al., 2011). University students have different lifestyles. Women at university are more liable to disordered eating, and the risk rises for those who use substances (Perryman et al., 2018).

Anorexia nervosa (AN) has been recorded in the literature since the seventeenth century, with the name "anorexia nervosa" being coined by Queen Victoria's personal physician, Sir William Gull, in 1874 (Niedzielski et al., 2017). The word is Greek in origin and means "nervous lack of appetite." Even in the early instances, it was clear that the victims were mostly adolescent females (Palmer et al., 1952). According to Freudian theory, the cause of this conduct was not just a lack of appetite, but rather a combination of factors including the symbolic character of eating (excess, gluttony, guilt, etc.), personality qualities, and components of puberty and sexuality (Bemporad et al., 1992).

Eating disorders have been recorded since 1347–1380 AD, when a girl suffered from a severe type of holy fasting. Her illness is today considered to be the earliest example of AN, but it differs from contemporary AN due to the religious motivations (Galassi et al., 2018). Professionals started to blame parents for EDs in the 1900s, and in certain instances, a "parentectomy" was done; the patients were still mostly adolescent females. The girls were removed from their parents in this operation in the aim of starting the healing process. AN, BN, and BED are more common than ever before. According to the National Eating Disorder Association, about 30 million individuals in the United States suffer from eating disorders, with an annual worldwide number of around 70,000 (Hudson et al., 2007; Le Grange et al., 2012).

Many theories think that Westernization is to blame for the increasing incidence of disordered eating since it emphasizes thinness and promotes slenderness (Nasser, 1986; Rauof et al., 2015). In many Arabian nations, significant cross-cultural social shifts have happened in recent decades, and the younger generation's views and actions have adopted western ideals (Jalali-Farahani et al., 2015; Bas et al., 2004; Latzer et al., 2014). Nonetheless, it has been shown that traditional Arab people regard plumpness as a symbol of attractiveness, fecundity, and good health (Abdollahi & Mann, 2001). As a result, teenage females are more likely to develop eating disorders as a result of a rising conflict between Western ideals and Arabic customs, and this cultural clash between a traditional culture and an accepted Westernized society (Latzer et al., 2014).

Nonclinical research in many Arab nations have recently shown the significant prevalence of aberrant eating attitudes and practices (Fath Al Alim et al., 2012; Al Sabbah, 2016; Kazim et al., 2017; Bano et al., 2013). Because a disordered eating attitude may evolve into an eating disorder with serious repercussions, early detection is critical to reducing the difficulties of eating disorders that occur throughout these periods of growth and development (D'Souza et al., 2005). Despite the significant occurrence of ED,

there is little research on the subject among university students in Arab nations, especially Saudi Arabia. As a result, in light of the severity of the issue on the one hand, and the lack of information about eating habits on the other, the current research will be conducted to study EDs among the Majmaah University students, Saudi Arabia.

The objective of this work is to estimate the prevalence and risk influences of eating disorders among university students in Majmaah University, KSA. The study also aims to find out the prevalence of EDs among Majmaah University students, determine if there is a link between weight status, eating behaviors, and academic performance in the research population, and to determine if there are any links between a variety of socio-environmental variables and ED in a group of participating students.

2. METHODOLOGY

Study design and setting

Analytical cross sectional study, in Majmaah University, KSA.

Study duration

This study was conducted from 1st June 2021 to 31st September, 2021.

Study population

Inclusion criteria

Majmaah University students aged 18 years or more, able to read and answer the data collection tool, and willing to participate and sign the informed consent form.

Exclusion criteria

Students with chronic illnesses, pregnancy, as well as pathological obesity

Sampling

The sample size was planned using the Cochran's Formula.

Data collection tool

A self-administered questionnaire will be used for data collection for this study. There are two portions to the questionnaire; Portion (A), which gathered socio-demographic information such as education level, study field, study year, academic performance last year, nationality, family size, home type, parent's educational and job, pubertal and health status, height (cm), weight (kg), and eating habits. Portion (B) The Eating Attitudes Test (EAT-26), which consists of 26 items was used to measure ED attitudes. Each statement is graded on six-points from "always" to "never." 'Always' received 3 points, 'usually' received 2 points, 'often' received 1 point, and 'sometimes', 'rarely', and 'never' received 0 points. Only the 26th item was scored in the other direction, with 0 points awarded for 'always, usually, and frequently,' and 1, 2, and 3 points awarded for 'sometimes, seldom, and never,' correspondingly. The answers to all 26 questions were added up at the conclusion, and those who scored precisely at or over the cutoff score of 20 were deemed to be at risk of disordered eating attitudes and practices.

Dieting, bulimia and food obsession, and oral control are the three EAT-26 variables, according to (Garner et al., 1983). Dieting, which entails limiting high-calorie meals and obsessing over body image/shape, has 13 elements in his factor; bulimia and food obsession, on the other hand, includes thoughts about food, binge, and self-induced vomiting. This dimension contained 6 questions such as "I've gone on eating binges that I don't think I'll be able to stop," "I feel like food dominates my life," and so on; and oral control includes 7 items that demonstrate the capacity to regulate food intake and professed stress commencing others to increase weightiness.

EAT 26 has a great internal consistency ($\alpha = 0.90$) and good criterion-related validity, which means it is very accurate in categorizing eating disordered and non-eating disordered people. (Al-Subaie et al., 1996), from Saudi Arabia also validated the EAT-26.

Data collection technique

The researchers distributed the questionnaire online as the questionnaire was distributed online on social media sites (WhatsApp-Twitter) to be filled out personally. The questionnaire will have a brief introduction explaining the nature of the research and confidentiality of the information that given to participants.

Data management

All data was entered, prepared examined and analyzed by means of SPSS 23, consuming the proper statistical procedures for accounting and analysis. P value <0.05 was measured for statistical significance.

Ethical considerations

Approval was obtained by the Research Ethics Committee of Majmaah University with letter number (MUREC-August.4/COM-2021/38-3). Data was anonymous for patient confidentiality. Use of these anonymous data in this research project was reviewed and approved by the research ethics committee. The collected data was kept safely in a password protected computer.

3. RESULTS

Table 1 illustrates sociodemographic characters of participants. Among 516 participants, 62.8% were males and 37.2% females. 92.6% were single. 24.4% of participants working. 13.6% were smokers. 5.8% were underweight, 23.3% overweight, and 13.9% were obese. Table (2and 3) illustrates responds and score for EAT-26 questionnaire as 28.6% of participating student were at great threat for ED while 71.4% were at low risk for ED (Figure 1).

Table 1 Sociodemographic characteristics of participants (n=516).

Parameter	No.	Percent
Gender	Male	324
	Female	192
Social status	Single	478
	Married	38
Working status	Working	126
	Not working	390
BMI	Under weight	30
	Normal weight	294
	Over weight	120
	Obese	72
smoking status	Non smoker	408
	Current smoker	70
	Ex-smoker	38

Table 2 Participants' responds to EAT-26 questionnaire.

	Always	Usually	Often	Sometimes	Rarely	Never
I am terrified of being overweight.	106 20.5%	88 17.1%	52 10.1%	84 16.3%	92 17.8%	94 18.2%
I avoid eating when I feel hungry.	12 2.3%	34 6.6%	38 7.4%	92 17.8%	130 25.2%	210 40.7%
I find myself busy with food.	44 8.5%	42 8.1%	90 17.4%	150 29.1%	102 19.8%	88 17.1%
Keep binge eating until I feel like I can't stop	42 8.1%	42 8.1%	38 7.4%	92 17.8%	126 24.4%	176 34.1%
I cut my food into small pieces.	38 7.4%	54 10.5%	46 8.9%	126 24.4%	120 23.3%	132 25.6%
I am aware of the calorie content of the foods I eat.	48 9.3%	72 14.0%	58 11.2%	100 19.4%	78 15.1%	160 31.0%
Especially avoid food with a high carbohydrate content (eg bread, rice, potatoes, etc.)	18 3.5%	32 6.2%	58 11.2%	100 19.4%	88 17.1%	220 42.6%

I feel others would prefer if I ate more.	30 5.8%	44 8.5%	40 7.8%	88 17.1%	48 9.3%	266 51.6%
Vomiting after I eat.	6 1.2%	4 .8%	20 3.9%	26 5.0%	46 8.9%	414 80.2%
You feel very guilty after eating.	44 8.5%	44 8.5%	50 9.7%	68 13.2%	68 13.2%	242 46.9%
I'm preoccupied with wanting to be thinner.	102 19.8%	58 11.2%	46 8.9%	90 17.4%	56 10.9%	164 31.8%
I think about burning calories when exercising.	136 26.4%	88 17.1%	82 15.9%	74 14.3%	34 6.6%	102 19.8%
Others think I'm too skinny.	68 13.2%	40 7.8%	64 12.4%	112 21.7%	64 12.4%	168 32.6%
I'm preoccupied with the idea of having fat on my body.	106 20.5%	62 12.0%	90 17.4%	80 15.5%	64 12.4%	114 22.1%
Took longer than others to eat my meals.	60 11.6%	66 12.8%	50 9.7%	104 20.2%	78 15.1%	158 30.6%
Avoid foods that contain sugar.	24 4.7%	46 8.9%	58 11.2%	148 28.7%	94 18.2%	146 28.3%
I eat diet foods	14 2.7%	32 6.2%	50 9.7%	120 23.3%	108 20.9%	192 37.2%
I feel like food is controlling my life.	34 6.6%	52 10.1%	90 17.4%	78 15.1%	58 11.2%	204 39.5%
Self-control around food	56 10.9%	66 12.8%	120 23.3%	126 24.4%	78 15.1%	70 13.6%
I feel like other people are pressuring me to eat.	44 8.5%	62 12.0%	74 14.3%	100 19.4%	72 14.0%	164 31.8%
Give plenty of time and think about food.	38 7.4%	46 8.9%	92 17.8%	108 20.9%	96 18.6%	136 26.4%
You feel uncomfortable after eating sweets.	62 12.0%	46 8.9%	84 16.3%	84 16.3%	84 16.3%	156 30.2%
Engaging in dieting behavior.	36 7.0%	52 10.1%	64 12.4%	90 17.4%	82 15.9%	192 37.2%
I like my stomach to be empty.	26 5.0%	56 10.9%	56 10.9%	122 23.6%	96 18.6%	160 31.0%
You have the urge to vomit after meals.	16 3.1%	18 3.5%	26 5.0%	32 6.2%	56 10.9%	368 71.3%
Enjoy trying new rich foods.	118 22.9%	96 18.6%	100 19.4%	90 17.4%	44 8.5%	68 13.2%

Table 3 Risk for ED according to the score for EAT-26

	No.	Percent
At high risk for ED	148	28.6%
At low risk for ED	369	71.4%

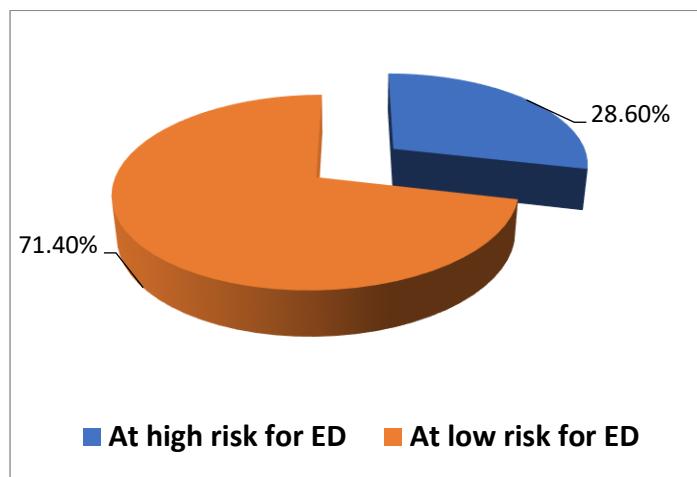
**Figure 1** Risk for ED according to the score for EAT-26

Table 4 shows that 22.9% and 14.3% of students reported eating so hard that they can't stop once a month and 2-3 times a month respectively. 87.6% of students never made themselves vomit to control weight. 88.4% never used laxatives, slimming pills or diuretics (water pills) to control your weight but only 3.5% use it once or twice daily. Only 7% play sports for more than an hour to lose or control weight once a day or more, 14.3% once a week, 18.2% 2- 6 times a week and 9.3% once a month. 23.6% of participants lost 9 kg or more in the past 6 months. Table 5 shows losing body significant weight in the past 6 months. 23.6% lost 9 kg or more in the past 6 months. Table 6 shows a significant correlation between risk for ED with male gender ($P= 0.001$), BMI ($P= 0.02$) and current smoking status ($P= 0.001$) but not with age, working status, and social status.

Table 4 Frequency of eating problems over a period of time for students

	Once a day or more	once a week	2 – 6 times a week	once a month	2 – 3 times a month	Never
You ate so hard you feel like you can't stop	26 5.0%	72 14.0%	38 7.4%	118 22.9%	74 14.3%	188 36.4%
You made yourself vomit to control weight	12 2.3%	10 1.9%	10 1.9%	14 2.7%	18 3.5%	452 87.6%
Using laxatives, slimming pills or diuretics to resistor your bodyweight or shape?	18 3.5%	12 2.3%	6 1.2%	14 2.7%	10 1.9%	456 88.4%
Playing sports for more than an hour to lose or control weight	36 7.0%	74 14.3%	94 18.2%	48 9.3%	56 10.9%	208 40.3%

Table 5 Losing body significant weight in the past 6 months

	Yes	No
Lost 9 kg or more in the past 6 months	122 23.6%	394 76.4%

Table 6 Significant correlation between EAT-26 score and sociodemographic characters of participants

	Gender	Risk for ED		Total (N=1020)	P value
		At high risk for ED	At low risk for ED		
Gender	Male	148	176	324	0.001
		100.0%	47.8%	62.8%	
	Female	0	192	192	
		0.0%	52.2%	37.2%	

Social status	Single	140	338	478	0.28
		94.6%	91.8%	92.6%	
	Married	8	30	38	
		5.4%	8.2%	7.4%	
Working status	work	44	82	126	0.075
		29.7%	22.3%	24.4%	
	not work	104	286	390	
		70.3%	77.7%	75.6%	
BMI	under weight	2	28	30	0.020
		1.4%	7.6%	5.8%	
	normal weight	86	208	294	
		58.1%	56.5%	57.0%	
	over weight	34	86	120	
		23.0%	23.4%	23.3%	
	obesity class I	17	40	57	
		11.5%	10.9%	11.0%	
	obesity class II	5	4	9	
		3.4%	1.1%	1.7%	
	obesity class III	4	2	6	
		2.7%	0.5%	1.2%	
smoking status	non smoker	100	308	408	0.001
		67.6%	83.7%	79.1%	
	current smoker	33	37	70	
		22.3%	10.1%	13.6%	
	ex-smoker	15	23	38	
		10.1%	6.3%	7.4%	

4. DISCUSSION

Eating disorders are some of the most under-researched and difficult to diagnose psychiatric conditions, with a high mortality rate. The current study reported that respondents score for EAT-26 questionnaire as 28.6% of participating students were at great threat for ED while 71.4% were at low risk for ED. A previous study of college students in Taif, Saudi Arabia found that 35.4% of students were rated at danger for ED (Taha et al. 2018). A higher prevalence of ED risk was reported in EAT26 (Pengpid et al., 2015), and 37.6% of students were classified as at hazard for ED. The prevalence of ED in ANNU students at EAT26 was 21.2% (17.1% for men and 23.8% for women), which was higher than that reported in Palestine (Damiri et al., 2021). Another study in South India reported a low proportion of 13% of students at high risk of eating disorders (Iyer & Shriraam, 2021). The prevalence of positive screening was 13.5% in women and 3.6% in men, so a narrow number was reported among freshmen (Eisenberg et al., 2011). Pakistani data reported an incidence of 23% (EAT26) in a sample of medical students in Karachi (Memon et al., 2012). In Pakistan's highest value was 17.1%, which estimated a pooled prevalence of ED risk by country, close to these estimates (Jahrami et al., 2019).

In the present study, 87.6% of students never made themselves vomit to control weight. 88.4% never used laxatives. In the American College Health Association's National College Health Assessment (ACHA-NCHA), 3% of females and 0.4% of males reported ever receiving a diagnosis of anorexia; 2% of females and 0.2% of males reported a previous history of bulimia; then 4% of women and 1% of males stated vomiting or using laxative tablets to mislead weight in the preceding month (ACHA, 2008). In our

results, there was a significant correlation between risk for ED with male gender ($P= 0.001$), BMI ($P= 0.02$) and current smoking status ($P= 0.001$) but not with age, working status, and social status. ED carries a number of biotic and psychic threat influences, comprising inherited and ecological factors (Jacobi et al., 2004).

Eating disorder forms and weight concerns, dietary restrictions, and family history are one of the most established risk factors for partial and complete symptomatic eating disorders (Stice et al., 2008). In most previous studies, women were at significant risk for ED than men, with a female-male ratio of ED prevalence of approximately 1.5 to 1 on both scale tests, which is noticeably lower than the global female to male ED prevalence (2.6 to 1) (Damiri et al., 2021) this finding steady with various further Arab and worldwide nations (Memon et al., 2012; Reyes-Rodríguez et al., 2010; Madanat et al., 2006; Fath Al Alim et al., 2012) but gender differences in Egypt Was observed (Shehata, 2020). One explanation for this small gap may be that men in this study were more overweight and obese (42.9%) than women (18.7%), (Damiri et al., 2021).

Risk for ED was increased among medical and obese students as they attained the uppermost substantial EAT scores (Taha et al., 2018). Another study reported increased risk of ED among obese students in Palastine (Damiri et al., 2021). In contrast to one study, an increased risk of ED correlated to great stress and unadorned body form anxieties was reported ($P<0.001$), but there was a substantial correlation amongst BMI and eating disorders. It didn't matter. Other influential factors included a history of behavioral symptoms such as counseling, peer pressure, excessive exercise, and taking laxatives and diet medications ($p <0.001$) (Iyer & Shriraam, 2021).

5. CONCLUSION

In conclusion, the reported risk of ED among university students in this study was among reported figures but relatively high when compared to global figures. This study highlights an underrated health problem among Saudi university students. Further research is needed exploring risk factors for better understanding of ED. Follow up studies should assess caffeine, nicotine, or stimulant use which may be appetite suppressants.

Limitations of the study

In this study we face some limitations, because some students refuse to participate in the study.

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Informed consent

Informed consent was obtained from all participants included in the study.

Ethical considerations

Prior to the start of the study, ethical approval was obtained from the Deanship of Scientific Research with approval No. MUREC Dec.24/COM-2018/13.

Author Contributions

All the authors contributed evenly with regards to data collecting, analysis, drafting and proofreading the final draft.

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Conflict of Interest

The authors declare that there are no conflicts of interests.

Data and materials availability

All data associated with this study are presented in the paper.

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